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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,854

Applicant(s)

VON SCHROETER ET AL.

Examiner

AMJAD ABRAHAM

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's remarks and amendments, filed on June 04, 2009, have been carefully considered. Claim 20 has been added as a new claim. Claims 1-16 and 18-19 are currently amended. Thus claims 1-20 are now pending.

Grounds of Rejection is maintained from prior office action dated March 4, 2009

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Examiner withdraws rejections to claims 5 and 11 under 35 USC 112 as the rejections have been obviated by amendments.
3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically claim 1 (lines 5 and 7) and claim 12 (lines 5 and 8) discloses the claim limitation "circumferential web or membrane" which has no conventional meaning in the art. It is not clear if applicant intends that "circumferential web" is structurally different to that of the stimulus which is disclosed in the prior art and stated in page 8 line 5 of applicant's specification). It is also unclear whether the circumferential web must have multiple connection points that form around the periphery of the dental cap in connection with the mold blank.

a. *Applicant, in response filed on June 4, 2009, has argued that circumferential web is clear to a person of ordinary skill in the art. The alleged support is the fact that applicants are allowed to be there own lexicographers and the specification discloses the relationship between the mold blank, circumferential web, and the molded piece. However, this does not resolve the issue as to what a circumferential web is and how it is differentiated from the prior art (stimulus). Applicant has admitted that their own translator used stimulus as the definition for the connection between the mold blank and the molded piece. Applicant has stated that the connection between the mold blank and the molded piece can be also known as a "circumferential web." However, applicant has continuously taken the position that the stimulus or web taught in Filser et al (USP No. 7,077,391 – figure 10 parts 20) does not qualify as a circumferential web although Filser clearly show a connection between a mold blank and a mold piece. As there is no teachings as to what constitutes the exact structure of the circumferential web as taught by applicant and how it differentiates from known webs, the limitation "circumferential web" is indefinite as it fails to clearly point out what applicant regards as their invention.*

i. Furthermore, applicant's specification does not teach wherein the circumferential web but teaches a circulating partition wall. Nowhere in applicant's disclosure is there a requirement that for a web to qualify as a circumferential web it must have a thin cross section or thickness.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. *Claims 1-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Hereafter, "APA"—See applicant's specification Page 7 to Page 8) in view of Filser et al. (WO 02/45614 A1—made of record by the applicant) whose English Equivalent is US Patent No. 7,077,391, which was relied on by examiner to make the following rejections).*
8. Regarding claim 1, APA teaches a manufacturing method for working a cap from a mold blank wherein a cap is brought out of the cap by removing a stimulus that is between the cap and the mold blank. **(See applicant's specification on page 7 line 19 to page 8 line 9—discussing figure 1 which is prior art)**. APA goes on to teach that the removal of the stimulus is usually done after the working of the inner and outer surface. **(See page 8 lines 3-4 and also see applicant's figure 1)**. APA also teaches wherein the mold piece is formed by milling (shape cutting) a blank. **(See page 7 lines 15-20)**.
- b. With respect to claim 1, APA does not explicitly teach wherein the stimulus is a circumferential web.
- c. However, Filser teaches wherein shape cutting **(machining-- see column 3 lines 62-66)** is applied to holding webs **(circumferential web)** which is the connection between the dental workpiece and the blank. **(Also see figures 7-10)**.
- d. APA and Filser are analogous art because they are in the same field of endeavor which is forming a dental cap from a mold blank. At the time of the invention, it would have been obvious to one having the ordinary skill in the art,

having the teachings of APA and Filser before him or her, to modify the teachings of APA to include the teachings of Filser for the benefit of applying holding webs or connection points to the dental cap in order to reduce the size of a stimulus and thus create a more uniform product. Filser teaches that when the webs are separated the workpiece can be ground smooth, leaving a dental cap with little to no defect. (See Filser column 5 lines 42-48). Filser goes on to teach that webs can be added to the workpiece in order to reduce the forces that act on a workpiece and therefore prevent any unwanted deformation. (See column 5 lines 56-65). Therefore it would have been obvious to one having the ordinary skill in the art to reduce the stimulus taught in APA by adding a holding web structure which had multiple connection points around the workpiece in order to ensure that the workpiece did not have additional stresses to one side of the workpiece that would cause deformation.

9. Regarding claims 2-4, APA does not teach: (1) wherein in that the circulating partition wall (32) is split via a circular (circulating) milling, (2) wherein the membranous connection (132) is destroyed during manual pressure on the casting, and (3) wherein the membrane-like connection (132) is split with a knife-like tool, such as a scalpel.

e. However, Filser teaches wherein milling cutters, grinding or special machining tools can be used to remove the holding webs. **(See column 1 lines 50-55, column 1 lines 35-45, claims 1 and 13).**

f. It would have been obvious to split the circumferential web or the membranous connection by way of circular milling, manual pressure, or a scalpel

as these are well known equivalents to the milling and grinding machining tools taught by Filser and it would have been obvious to try one of these well known machining process to remove the web or membrane..

10. Regarding claim 5, APA teaches wherein the stimulus is trained on the outer boundary of the dental workpiece. **(See figure 1 in applicant's specification).**

g. Filser further teaches that the dental workpiece is held by webs at the periphery of the piece. **(See figures 7-10).**

h. It would have been obvious for one having the ordinary skill in the art to attach the web to the largest area of the workpiece for the greatest support as one would have been motivated to ensure that the workpiece would not give way.

11. Regarding claim 6, APA teaches that the inner and outer contour is finished on the workpiece before the stimulus is removed. **(See page 8 lines 3-4 and also see applicant's figure 1).**

i. Obviously one of the inner or outer contours must be worked before the other. Therefore, it would have been obvious to one having the ordinary skill in the art to work the inner before the outer or vice versa.

12. Regarding claim 7, APA does not explicitly teach wherein for the manufacture of a molded piece (24, 124), a rough milling takes place first, in particular with a meander-shaped strategy and then a fine milling, in particular with a circular strategy.

j. However, Filser teaches that it is conventional to machine a dental workpiece by a coarse (rough) and fine machining. **(See column 1 lines 38-41).**

ii. It would have been obvious to do the rough milling before the fine milling in order to ensure the surface of the dental workpiece was smooth and suitable for commercial use.

13. Regarding claims 8-10, the combination of APA and Filser does not explicitly teach: (1) wherein before the connection is split, a smoothing of the inner contour (28, 128) and/or the outer contour (30, 130) takes place, and (2) wherein directly before splitting the connection (32, 132), the cavity of the molded piece (24, 124) is worked by fine milling, and (3) that the molded piece (24, 124), separated from the mold blank (26, 126) is cleaned circular in the area of removed connection (32, 132).

k. However, Filser discloses that smoothing and fine milling, and general working of the workpiece can be done while the workpiece is still in the web.

(See column 5 lines 45-46—disclosing that there is machining of the workpiece before the webs are split). Also a smoothing operation is taught by Filser after the webs are split. **(See column 5 lines 47-48).**

l. Thus, it would have been obvious to apply the teachings of Filser to APA for the benefit of working the workpiece while the workpiece was still supported by the web. This would eliminate the need for post-processing the workpiece after the web is cut.

14. Regarding claim 12, APA teaches a manufacturing method for working a cap from a mold blank wherein a cap is brought out of the cap by removing a stimulus that is between the cap and the mold blank. **(See applicant's specification on page 7 line 19 to page 8 line 9—discussing figure 1 which is prior art).** APA goes on to teach that

the removal of the stimulus is usually done after the working of the inner and outer surface. **(See page 8 lines 3-4 and also see applicant's figure 1)**. APA also teaches wherein the mold piece is formed by milling (shape cutting) a blank. **(See page 7 lines 15-20)**.

m. With respect to claim 12, APA does not explicitly teach wherein the stimulus is a circumferential membrane with a plurality of holes formed therein to make a circumferential membrane that has perforations and then splitting said perforated circumferential membrane to recover the molded piece.

n. However, Filser teaches wherein shape cutting **(machining-- see column 3 lines 62-66)** is applied to holding webs **(circumferential web)** which is the connection between the dental workpiece and the blank. **(Also see figures 7-10)**. Then the membrane is split causing the work piece to be removed from the system. **(See column 5 lines 43-47)**.

iii. *It is Examiner's position that the milling of the blank forms gaps (perforations) between the web portions (20) and the network of webs form the circumferential membrane with perforations.*

o. APA and Filser are analogous art because they are in the same field of endeavor which is forming a dental cap from a mold blank. At the time of the invention, it would have been obvious to one having the ordinary skill in the art, having the teachings of APA and Filser before him or her, to modify the teachings of APA to include the teachings of Filser for the benefit of applying holding webs or connection points to the dental cap in order to reduce the size of a stimulus

and thus create a more uniform product. Filser teaches that when the webs are separated the workpiece can be ground smooth, leaving a dental cap with little to no defect. (See Filser column 5 lines 42-48). Filser goes on to teach that webs can be added to the workpiece in order to reduce the forces that act on a workpiece and therefore prevent any unwanted deformation. (See column 5 lines 56-65). Therefore it would have been obvious to one having the ordinary skill in the art to reduce the stimulus taught in APA by adding a holding web structure which had multiple connection points around the workpiece in order to ensure that the workpiece did not have additional stresses to one side of the workpiece that would cause deformation.

15. Regarding claim 13, APA does not explicitly teach that after extracting the molded piece (24, 124) on this, a remainder is removed though manual working, e.g. by scraping and/or milling.

p. However, Filser teaches that at the point of separation the workpiece is ground smooth. **(Column 5 lines 47-48).**

iv. It is a conventional goal of dental workpiece making to create a smooth workpiece which is defect free. Thus, it would have been obvious to smooth the remaining pieces left on the workpiece with a machining step such as manual working.

16. Regarding claim 14, APA does not expressly teach wherein the holes are formed as a slot.

- q. However, Filser teaches a perforation or gap between the webs. (See figure 10).
- v. A slot is nothing more than a depression, perforation, aperture, or opening. Therefore, the gaps in figure 10 of Filser would qualify as a slot.
17. Regarding claims 15-16, the combination of APA and Filser does not teach: (1) wherein the three elongated through holes have a length LD are formed following an elbow or elbow-like section, and wherein a dividing connection is present between two adjacent through holes and (2) wherein the relationship between the LD and the LV is $1:20 \leq LV : LD \leq 1:5$.
- r. However, Filser discloses multiple through holes which have divided connections (webs) placed there between. Although the size and design of the holes are not disclosed, it would have been routine optimization for one having the ordinary skill in the art to machine the webs in order to form the most efficient web for the forming system. Filser goes on to teach wherein that holding webs can be freely selected according to position and number. (See column 3 lines 55-60).
18. Regarding claim 17, APA does not teach that the mold blank is mounted rotatable and is worked along three axes by means of a movable milling tool.
- s. However, Filser teaches a workpiece carrier that is used and can move rotary and three axes of translation. (See column 1 lines 49-60).

- t. It would have been obvious to work a workpiece in all three directions as dental caps are three dimensional objects that working in inner and outer surfaces of the workpiece.
19. Regarding claims 18-19, APA does not teach that materials such as those made from pre-sintered or sintered ceramics material, such as zircon oxide or aluminum oxide are used as a mold blank (26, 126).
- u. However, Filser teaches that blanks can be made of aluminum oxide and zircon oxide in the green or sintered state. (See column 2 lines 39-49).
- v. It is well known in the art to make dental workpieces from a ceramic like zirconium oxide or aluminum oxide.
20. Regarding claim 20, APA does not expressly teach wherein the perforated circumferential membrane is formed in the outer boundary range.
- w. However, Filser teaches wherein the membrane is formed around the boundary of the workpiece. (See figure 10).
- x. It would have been obvious to form the membrane on the boundary in order to make removal easier as the web would not be entrained into the article.
21. *Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Hereafter, "APA"—See applicant's specification Page 7 to Page 8) in view of Filser et al. (WO 02/45614 A1—made of record by the applicant) whose English Equivalent is US Patent No. 7,077,391, which was relied on by examiner*

to make the following rejections) and in further view of Bodenmiller et al. (USP No. 6,495,073).

22. Regarding claim 11, the combination of APA and Filser does not teach splitting the circulating partition wall (32), the molded piece (24) from a padded receptacle is caught in a position, which corresponds to the position, or approximately to the position of the molded piece in the mold blank (26).

y. With respect to claim 11, Bodenmiller teaches wherein a dental workpiece can be extracted by using a collecting dish (part number 8) in conjunction with a fluid mat (part number 7). **(See figure 7 and column 8 lines 46 to 60).**

vi. The dental workpiece extracted or removed from Bodenmiller is caught in a position underneath its position in the mold blank through a wax melting procedure. This wax melting procedure will allow for the dental workpiece to fall out of the mold at a slower pace, thus weakening the impact of the workpiece against the fluid mat. The extraction assembly utilized by Bodenmiller is a common solution to the problem of eliminating post fabrication defects to a workpiece.

vii. While Bodenmiller does not explicitly teach the use of a padded receptacle, Bodenmiller does teach the use of a receptacle to catch the milled workpiece. Thus, it would be obvious to catch the machined workpiece in a padded container because one skilled in the art would want to ensure that the workpiece would have no defects from contacting a hard surface and causing an abrasion onto the workpiece. A defect free

workpiece is sought after in the dental cap art and one would have been motivated to ensure that the workpiece was not scratched.

Response to Arguments

23. Applicant's arguments filed June 4, 2009 have been fully considered but they are not persuasive.

23. **Applicant's Argument:** That the claim limitation circumferential web is definite because applicant has sufficiently defines said limitation in the specification.

z. **Examiner Response:** *Applicant, in response filed on June 4, 2009, has argued that circumferential web is clear to a person of ordinary skill in the art. The alleged support is the fact that applicants are allowed to be there own lexicographers and the specification discloses the relationship between the mold blank, circumferential web, and the molded piece. However, this does not resolve the issue as to what a circumferential web is and how it is differentiated from the prior art (stimulus). Applicant has admitted that their own translator used stimulus as the definition for the connection between the mold blank and the molded piece. Applicant has stated that the connection between the mold blank and the molded piece can be also known as a "circumferential web." However, applicant has continuously taken the position that the stimulus or web taught in*

Filser et al (USP No. 7,077,391 – figure 10 parts 20) does not qualify as a circumferential web although Filser clearly show a connection between a mold blank and a mold piece. As there is no teachings as to what constitutes the exact structure of the circumferential web as taught by applicant and how it differentiates from known webs, the limitation “circumferential web” is indefinite as it fails to clearly point out what applicant regards as their invention.

viii. Furthermore, applicant's specification does not teach wherein the circumferential web but teaches a circulating partition wall. Nowhere in applicant's disclosure is there a requirement that for a web to qualify as a circumferential web it must have a thin cross section or thickness.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMJAD ABRAHAM whose telephone number is (571)270-7058. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1791